

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated January 16, 2004 (U.S. Patent Office Paper No. 20040106). In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

As outlined above, claim 10 is being canceled without prejudice or disclaimer, while claim 9 is being amended to correct formal errors and to more particularly point out and distinctly claim the subject invention. Claim 5 stands withdrawn from consideration in this application. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Formal Objections or Rejections

Claims 9 and 10 were rejected under 35 U.S.C. §112, first paragraph, for failing to comply with the written description requirement. In particular, claim 9 is rejected for reciting “polyamide” instead of “polyimide” and claim 10 is rejected for reciting a range of length not supported in the specification.

As shown above, Applicants amended claim 9 to recite “polyimide” instead of “polyamide” and canceled claim 10 without prejudice and disclaimer. The amendment to claims 9 and 10 is believed to overcome the rejection under 35 U.S.C. 112, first paragraph. Accordingly, reconsideration and withdrawal of the rejection is respectfully requested.

Prior Art Rejections

Claims 1, 3, 6, 7, 11, and 12 were rejected under 35 U.S.C. §103(a) as being unpatentable over Karger, U.S. Patent No. 5,085,757 (further, Karger ‘757) in view of Ku *et al.*, U.S. Patent No. 6,184,119 (further, Ku ‘119).

Applicants respectfully disagree with the above rejection and submit that claim 1 recites a method for removing a predetermined region of a coating of a polymer-coated glass capillary tube. The method comprises the steps of raising a temperature in a reaction chamber in which the predetermined region of the polymer-coated glass capillary tube is arranged, and

reacting the predetermined region of the glass capillary tube with a reactive gas containing O₃ gas introduced into the reaction chamber.

Claim 6 of the present invention recites a method for manufacturing a polymer-coated glass capillary tube having a predetermined region of a coating of the polymer coated glass capillary tube removed. The method comprises the steps of providing the polymer coated glass capillary tube, raising a temperature in a reaction chamber in which the predetermined region of the polymer-coated glass capillary tube is arranged, and reacting the predetermined region of the glass capillary tube with a reactive gas containing O₃ gas introduced into the reaction chamber.

Applicants respectfully submit that the invention recited by the above claims is directed to raising the temperature in a reaction chamber and inducing a reaction with a reactive gas containing O₃ introduced into the reaction chamber. The reaction involves a predetermined region of the gas capillary tube reacting with the reactive gas. The result of this reaction is a tapered coating produced on a predetermined window surface of the capillary. The coating has a gradually decreasing thickness, the thickness decreasing from the coating portion towards the window-processed portion. (Please see FIG. 10b and the corresponding description in the specification, on pages 18 through 20). Due to the fact that the thickness of the coating decreases from the window-processed portion towards the coating, thereby having a tapered thickness, the capillary can withstand high degrees of stress. Please see further details about this special advantage induced by the present invention on page 19, line 10 to page 20, line 13 and page 21, lines 4 to 12 of the specification. According to conventional techniques and as described on page 4, first paragraph of the specification, if the coating at the predetermined window is removed without changes in the thickness of the coating, the capillary is likely to break because stress tends to concentrate at the coating edge of the window when the capillary is bent.

The Examiner alleged in the Office Action, on pages 3, that Karger '757 teaches a method of removing the polymeric coating from the surface of electrophoresis capillary tubes. The Examiner cites Karger '757, col. 8 line 14 in support of the allegation. However, the Examiner concedes that Karger '757 does not disclose that the removing of the polymer by heating is performed in the presence of ozone.

Applicants respectfully disagree with the Examiner's allegations made in connection with Karger '757 and respectfully submit that Karger '757 in fact discloses a method for removing the polymer coating from a capillary by employing a polymer burner, as described

in U.S. Patent No. 4,940,833 (See Karger '757, col. 8, lines 5 to 14). Further, according to col. 3, lines 3 to 37, the polymer burner burns the polymer coating employing a heated wire to form a window. Thus, the method of removing a polymer coating from a capillary described by Karger '757 involves the use of a heated wire for burning the coating, and a burning process that requires oxygen but does not involve the use of a "reactive gas containing O₃ gas". Based on the above, Applicants contend that in view of the above and the reference's deficiency pointed out by the Examiner in the office action, Karger '757 fails to disclose, teach or suggest that the removal of the coating is done in the presence of ozone and that a reaction with ozone occurs during a reacting step. Further, Applicants respectfully submit that Karger '757 also fails to disclose, teach or suggest that by practicing the present invention, the capillaries are not subjected to the high stress that appears when using any other polymer removal method.

The Examiner alleges in the office action on page 3 that Ku '119 cures the deficiencies of Karger '757 with what is taught in Ku '119 col. 9, lines 37 - 40 and that it would have been obvious to modify Karger '757 in view of Ku '119 to obtain the recitation of claims 1 and 6. Applicants respectfully disagree with both allegations made above and submit that Ku '119 discloses a method of removing the polymer layer from semiconductor devices. Ku '119 suggest in col. 9, lines 38 to 50 several alternatives for removing the polymer. The embodiments comprise either heating a hot plate up to 250 degrees Celsius in an ozone ambient or using a downstream oxygen plasma.

Applicants submit that Ku '119 fails to specifically disclose, teach or suggest "a reaction chamber in which the predetermined region of the polymer-coated glass capillary tube is arranged" or the step of "reacting the predetermined region of the glass capillary tube with a reactive gas containing O₃ gas introduced into the reaction chamber". Further, in addition to the above, Applicants submit that Ku '119 fails to disclose, teach or suggest "providing the polymer coated glass capillary tube".

Applicants respectfully submit that the combination of Karger '757 and Ku '119 suggested by the Examiner is not desirable because the two references are directed to non-analogous art. Per applicants' discussion made above in connection with each reference, Karger '757 is directed to a method that employs a heated wire for burning the coating of a capillary and Ku '119 is directed to a method of producing semiconductor devices. Therefore, Applicants respectfully submit that a combination of the references mentioned above is not

desirable and the combination or modification of Karger '757 in view of Ku '119 would destroy its intended scope and function.

Based on the arguments presented above, Applicants respectfully submit that Karger '757 on its own or in combination with Ku '119 does not anticipate or render obvious the recitation of claims 1 and 6.

Claims 3, 7, 11, and 12 depend from and add features to an allowable claim. Therefore, they are allowable for at least the same reasons and for reasons contained therein.

Claims 4, 8, and 13 were rejected under 35 U.S.C. §103(a) as being unpatentable over Karger U.S. Patent No. 5,085,757 (further, Karger '757) in view of Ku *et al.*, U.S. Patent No. 6,184,119 (further, Ku '119) and in further view of Clampitt, U.S. Patent No. 5,994,232 (further, Clampitt '232).

Claims 4, 8, and 13 depend from and add features to allowable claims 1 and 6. Therefore, claims 4, 8, and 13 are allowable over Karger '757 in view of Ku '119 for at least the same reasons expressed above in connection with the rejection regarding claims 1 and 6 and for reasons contained therein.

Indication of Allowable Subject Matter

The Examiner's indication that claim 2 is directed to allowable subject matter is gratefully acknowledged.

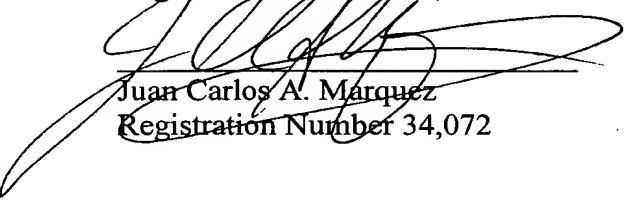
Conclusion

In view of all the above, Applicants respectfully submit that certain clear and distinct differences as discussed exist between the present invention as now claimed and the prior art references upon which the rejections in the Office Action rely. These differences are more than sufficient that the present invention as now claimed would not have been anticipated nor rendered obvious given the prior art. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicant's undersigned representative at the address and phone number indicated below.

Respectfully submitted,

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March 22, 2004